

GP-303000

AUTOMATIC TRANSMISSION CLUTCH TIMING OPTIMIZATION
APPARATUS AND METHOD

ABSTRACT OF THE DISCLOSURE

A method for determining when in the course of a shift event an on-coming clutch gains torque capacity is provided. The method includes

5 closed-loop controlling an off-going clutch to maintain a predetermined slip threshold by generating an off-going clutch pressure command, causing the on-coming clutch to engage during the closed loop control of the off-going clutch, generating a first derivative with respect to time of the off-going clutch pressure command, and using the first derivative to determine when the on-

10 coming clutch gained torque capacity. A neural network method is preferably employed in analyzing the first derivative to locate a transition in the rate of commanded pressure indicative of off-going clutch release. A corresponding apparatus is also provided.